

**Use Attainability Analysis**  
**for**  
**Water Body Identification # 0031**  
**McLean Creek**

**Conducted by:**  
**Environmental Resources Coalition**

**To:**  
**Missouri Department of Natural Resources**  
**Water Protection Program**

**Submitted: July 14, 2005**



## **Stream Description – WB ID: 0031 – McLean Creek**

McLean Creek (WB 0031) is a three and one half mile Class C stream. The water body is located in eastern Lincoln County in the Lincoln Hills Section of the Glaciated Plains physiographic region (Thom and Wilson 1980). The Glaciated Plains physiographic region covers the northern third of the state and is characterized by soils and topography that resulted from the influence of the Kansan stage of the Pleistocene glaciation. The soils are formed from loess and glacial till, or from alluvium. However, the Lincoln Hills Section of the Glaciated Plains physiographic region is distinguished from the rest of the region in that it may have partially escaped glaciation. The topography of this section is characterized by steep rugged forested hills with occasional bed rock exposures.

McLean Creek is the receiving water body for Winfield Municipal Lagoon (MO0088676). The classified reach runs from either  $1\frac{3}{4}$  or  $\frac{1}{4}$  of a mile upstream of Willow Creek Road (site # 1) and flows east through the northern edge of Winfield to the confluence with Bobs Creek. Approximately one and one half miles of the assessed reach lies downstream of Winfield Municipal Lagoon. Four sites of the stream were assessed for physical characteristics. Primary surroundings include wooded areas, farm pastures, cropland, the edge of the town of Winfield and small rural residential sites.

During this assessment, the field crew did not find sufficient depth to support whole body contact recreation (maximum depth of at least one meter or average depth of at least  $\frac{1}{2}$  meter.) However, the assessment team did notice a distinct change in stream use at the Whiteside Street Bridge located at the northeastern edge of Winfield. Upstream of the bridge was used for some form of contact recreation (wading, wade fishing, and possible swimming) during lower flow conditions. However, the downstream side of the Whiteside Street Bridge seems not to be used for contact recreation during lower flow conditions.

Thom, R. H. and J. H. Wilson. 1980. The Natural Divisions of Missouri. Trans. Mo. Acad. Sci. 14: 9-23.

**Note:** During the first visit to each site, ERC selected an assessment location (either upstream or downstream) based on which side appeared deepest and or most likely for whole body recreation.

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet A: Water Body Identification

<b>Water Body Name:</b> McLean Creek
<b>8 – digit HUC:</b> 07110004
<b>Missouri WBID #</b> 0031
<b>County:</b> Lincoln
<b>Upstream Legal Description:</b> Sec. 16, T49N, R2E, Lincoln County
<b>Downstream Legal Description:</b> Sec. 29, T49N, R2E, Lincoln County
<b>Upstream Coordinates:</b> Latitude 39.0091126° N , Longitude 90.7818483° W
<b>Downstream Coordinates:</b> Latitude 38.9724510 ° N , Longitude 90.7113387 ° W
<b>Discharger Facility Name(s):</b> Winfield Municipal Lagoon
<b>Discharger Permit Number(s):</b> MO0088676
<b>Number of Sites Evaluated:</b> 4
<b>Name of Surveyor and Telephone Number:</b> Robert R. Bacon, (573) 634-7078
<b>Organization:</b> Environmental Resources Coalition (ERC)
<b>Position:</b> Director of Aquatic Services

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA sheet is true and accurate.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

7-14-2005

## Weather Conditions

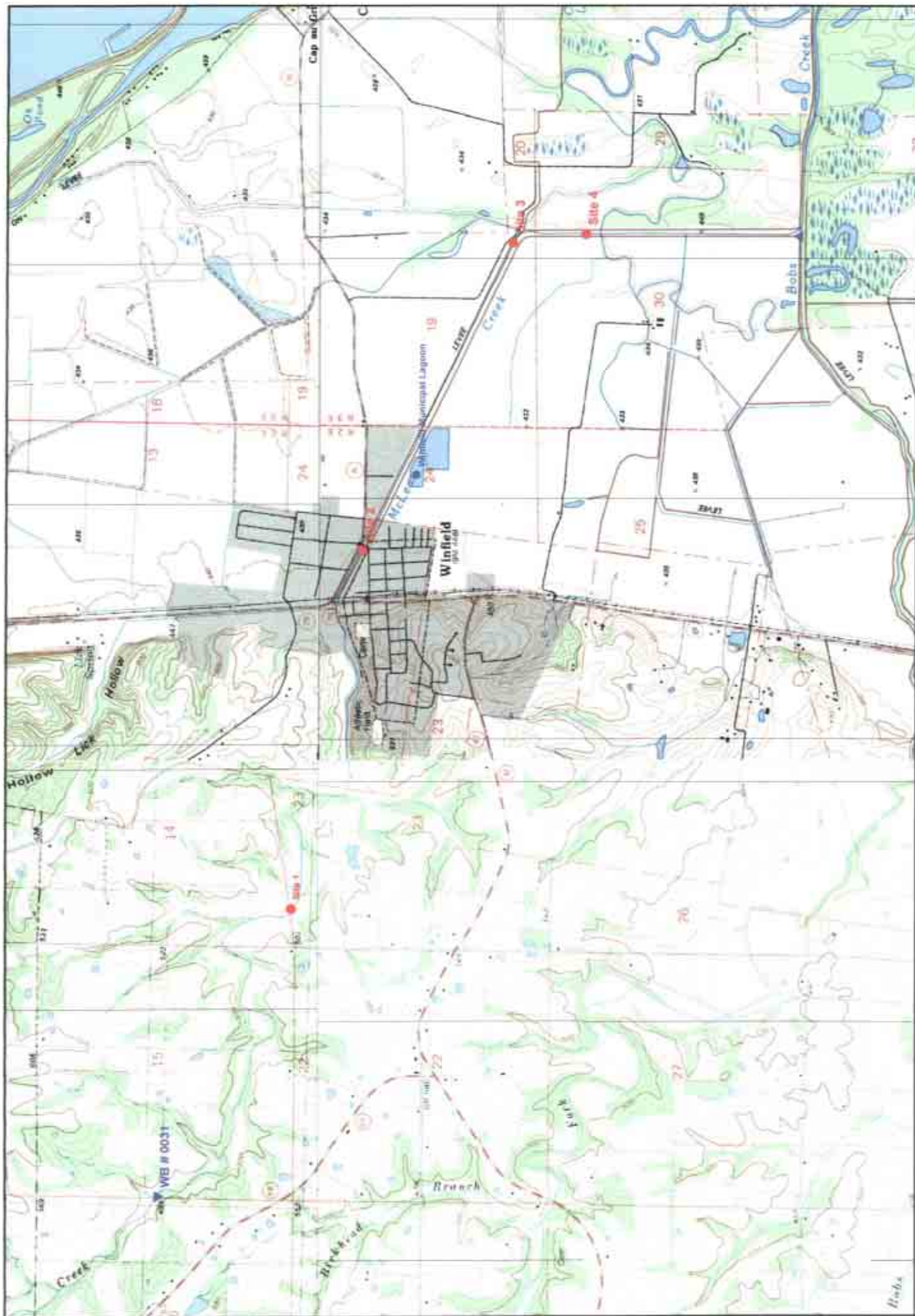
Weather conditions for the field surveys and the previous ten days are listed in the tables below.

Data from the Midwestern Regional Climate Center  
Troy, MO, Station ID: 238456

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Average Temp (°F)
04/15/2005	0	38	69	54
04/16/2005	0	43	78	61
04/17/2005	Missing	47	81	64
04/18/2005	Missing	47	83	65
04/19/2005	0	49	82	66
04/20/2005	0	56	79	68
04/21/2005	Missing	55	72	64
04/22/2005	Missing	53	62	58
04/23/2005	Missing	38	52	45
04/24/2005	Missing	33	59	46
04/25/2005	Missing	36	63	50

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Average Temp (°F)
05/28/2005	0.02	51	78	65
05/29/2005	Missing	54	77	66
05/30/2005	0.38	56	80	68
05/31/2005	0	59	79	69
06/01/2005	Missing	56	82	69
06/02/2005	Missing	57	80	69
06/03/2005	0	57	83	70
06/04/2005	0	57	85	71
06/05/2005	0.05	66	94	80
06/06/2005	0	58	93	76
06/07/2005	0.14	58	85	72

\* Missing indicates that data was not available from the Midwestern Regional Climate Center



Location: 038.9917741° N 090.7426931° W

Name: WINFIELD  
Date: 7/12/2005  
Scale: 1 inch equals 2500 feet



# **WB # 0031 – McLean Creek**

## **Site # 1 - Kitson Rd. to Willow Creek Rd.**

**GPS Location**

**39.0015994 North**

**90.7608715 West**

**Elevation (feet)**

**479.8**

### **Upstream Views**

**04/25/05**



**06/07/05**



### **Downstream Views**

**04/25/05**



**06/07/05**



## Physical Dimensions – Site # 1

	04/25/05	06/07/05
Assessment Location	Downstream	Downstream
Time	4:15 PM	2:35 PM
Stream Type	Pool	Pool
Width (m)	5.79	2.74
Length (m)	9.14	9.14
Ave Depth (cm)	26.00	8.80
Maximum Depth (cm)*	53.0	17.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

### **SUBSTRATE**

Cobble	100%	100%
Gravel	0%	0%
Sand	0%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

### **OTHER**

Uses Observed	Fishing	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	80% periphyton (moderately heavy growth)	85% periphyton
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	Periphyton	Periphyton
Surface Deposits	Red bacteria	Red bactreia

\* Maximum depth is maximum measured depth within the stream cross-section

**NOTES:** Site # 1 is the uppermost site on McLean Creek.

# **WB # 0031 – McLean Creek**

**Site # 2 - Whiteside Rd. in Winfield, Missouri**

**GPS Location**

**38.9975148 North**

**90.7345167 West**

## **Upstream Views**

**04/25/05**



**06/07/05**



## **Downstream Views**

**04/25/05**



**06/07/05**





## Physical Dimensions – Site # 2

	04/25/05	06/07/05
Assessment Location	Upstream	Upstream
Time	5:00 PM	2:50 PM
Stream Type	Run	Run
Width (m)	5.03	4.27
Length (m)	76.20	60.96
Ave Depth (cm)	17.50	9.93
Maximum Depth (cm)*	32.0	19.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

### **SUBSTRATE**

Cobble	60%	40%
Gravel	0%	0%
Sand	40%	60%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

### **OTHER**

Uses Observed	None	3 boys - wading
Evidence of Human Use (WBCR)	None	Wading
Aquatic Vegetation	Periphyton	Algae, Periphyton 100%

### **Water Characteristics**

Odor	None	Musky
Color	Clear	Cloudy/green
Bottom Deposits	Heavy growth of periphyton	Periphyton
Surface Deposits	None	None

\* Maximum depth is maximum measured depth within the stream cross-section

### **NOTES:**

## **Evidence of Human Use (WBCR)**

**\*\* Kids were playing on the west side of bridge on Whiteside Rd. in Winfield**

**06/07/05**



# **WB # 0031 – McLean Creek**

## **Site # 3 - Big Box Rd.**

**GPS Location**

**38.9888867 North**

**90.7119254 West**

### **Upstream Views**

**04/25/05**



**06/07/05**



### **Downstream Views**

**04/25/05**



**06/07/05**



## Physical Dimensions – Site # 3

	04/25/05	06/07/05
Assessment Location	Upstream	Upstream
Time	5:20 PM	2:54 PM
Stream Type	Run	Run
Width (m)	5.26	3.05
Length (m)	321.87	321.87
Ave Depth (cm)	17.84	6.27
Maximum Depth (cm)*	33.0	13.0
Flow Present	No	No
Flow (cfs)	-	-

### **SUBSTRATE**

Cobble	0%	0%
Gravel	0%	0%
Sand	100%	100%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

### **OTHER**

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	Thick yellow Floating algae 90% cover
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	None	None
Surface Deposits	None	None

\* Maximum depth is maximum measured depth within the stream cross-section

### **NOTES:**



# **WB # 0031 – McLean Creek**

## **Site # 4 - Big Box Rd**

**GPS Location**

**38.984695 North**

**90.7112964 West**

### **Upstream Views**

**04/25/05**



**06/07/05**



### **Downstream Views**

**04/25/05**



**06/07/05**



## Physical Dimensions – Site # 4

	04/25/05	06/07/05
Assessment Location	Upstream	Upstream
Time	5:30 PM	3:10 PM
Stream Type	Run	Run
Width (m)	7.92	4.88
Length (m)	434.49	434.49
Ave Depth (cm)	24.79	2.59
Maximum Depth (cm)*	45.0	6.0
Flow Present	No	No
Flow (cfs)	-	-

### **SUBSTRATE**

Cobble	0%	0%
Gravel	0%	0%
Sand	100%	100%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

### **OTHER**

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	5% emergent	Floating algae, thick/yellow 90%
<i>Water Characteristics</i>		
Odor	None	None
Color	Turbid	Clear
Bottom Deposits	Light algae	None
Surface Deposits	None	None

\* Maximum depth is maximum measured depth within the stream cross-section

### **NOTES:**

## Site Descriptions

**Site #1:** Site #1 of McLean Creek is located on Willow Creek Road and is the uppermost site of the classified reach. Pastures, wooded areas, and horse boarding stables surround the water body at this site. Heavy periphyton growth covers the stream bed and red bacteria was on the surface during each visit to the site.

**Site #2:** Site #2 of McLean Creek is located on Whiteside Road in the Winfield city limits. Houses line the right descending bank of the water body, and a path has been beaten down the steep banks to the stream on the upstream side of the bridge. The water was cloudy and green in color. Trash bags and broken bottles are scattered throughout the area.

During the assessment on June 7<sup>th</sup>, three small boys were witnessed playing in the stream, all of whom appeared to be less than eight years old. They stated that they had spent a lot of time moving trash bags and broken bottles out of the stream in order to be able to walk down it.

**Site #3:** Site #3 of McLean Creek is located on Big Box Road outside of the Winfield city limits. This site is the first downstream of the WWTF. Here the water body resembles a drainage ditch, having tall levees, steep banks, and fields surrounding both sides. There were no paths to the stream at this site, and the strong odor of dead animals and trash was present. Surface deposits included thick, yellow, floating algae that covered approximately 90% of the water body.

**Site #4:** Site #4 of McLean Creek is located on Big Box Road outside of the Winfield city limits, and is downstream of site #3. The water body at this site is similar to a drainage ditch in that it has levees, steep banks, and fields surround both sides. There are many drainage pipes into the ditch, and the thick, yellow, floating algae is prevalent, covering about 90% of the water body.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on the UAA datasheets, are true and accurate.

Signed: Robert D. B...

Date: 7-14-2005

Organization: ERC

Position: Dir. of Aquatic Services

## Summaries of Interviews

The following interviews were conducted by Robert Bacon, Abby Welschmeyer, and Anna Welschmeyer with landowners and creek users during the months of April, May, and June of 2005. Questions were asked of the interviewee either in person or over the phone, and survey sheets were completed based on the information acquired by the interviewer. The questions asked are as follows:

- How long have you lived near this body of water?
- Do you or your family utilize this body of water for recreational activities?
- If not used, why?
- If used, what types of activities, what season, how many times per period, and what flow conditions (low, medium, or high)?
- Have you witnessed other people utilizing the water body? (If so, the aforementioned questions apply.)

To assist in the collection of interviews letters, were developed detailing the water quality rule, our affiliation with the Missouri Department of Natural Resources and our contact information. These letters were left at residences nearby the water body where no one answered the door. This turned out to be a very effective way of quickly collecting key interviews of people most familiar with the resource.

**Date:** 04/25/05

**Time:** 4:45 PM

**Name:** Jake Shelton

**Reason for interview:** was fishing at site #1 at time of assessment

Jake Shelton is thirteen years old and was not formally interviewed due to his age. However, due to his knowledge of the upper portion of this stream we decided to include his informal interview with us. He has lived near McLean Creek for about one year, but has been coming to the stream for three years. He said he uses the water body for wading in June, July, and August, and also for catching minnows. Mr. Shelton also stated that he has seen other people swimming and wading in the stream during summer months. He also said that he knows of a swimming hole which is over one meter deep downstream of site one. However, the presence and depth of this swimming hole was not investigated or verified by our field assessment crew.



## **Summaries of Interviews (cont'd)**

**Date:** 05/26/05

**Time:** 10:10 AM

**Name:** Linda L. Wilmeshere

**Reason for Interview:** lives near site #1

Linda Wilmeshere has lived near McLean Creek for 12 years. She stated that she allows her grandson to fish in and find frogs around the water body during the summer months, but will not allow him to get in the stream because she does not think it is safe. Ms. Wilmeshere commented that she has seen the neighbor children playing in the creek, fishing for minnows, and finding frogs, but never swimming.

**Date:** 04/25/05

**Time:** 4:30 PM

**Name:** Bob Burks

**Reason for Interview:** stopped at site #1 during assessment

Bob Burks has lived near McLean Creek for 21 years. He does not use the water body for recreational activities, claiming it is not deep enough and citing the fact that he has a pool in his yard. Mr. Burks stated that he has seen people catching minnows in the creek, but has never witnessed anyone swimming.

**Date:** 05/26/05

**Time:** 10:20 AM

**Name:** Richard Ouhl

**Reason for Interview:** lives near site #1

Richard Ouhl has lived near McLean Creek for 12 years. He uses the stream for fishing during the summer months when it is at low flowing conditions. He stated that he allows his step-child to look for frogs around the creek, but doesn't allow him to swim in it for safety reasons. Mr. Ouhl commented that he has seen people fishing from the stream during the summer months.

## Summaries of Interviews (cont'd)

**Date:** 06/05/05

**Time:** 8:58 PM

**Name:** Arron Grigsby

**Reason for Interview:** owns land along water body between site # 1 and # 2 – phone interview

Arron Grigsby has lived near McClean Creek for eight years. He and his family use the creek for wading occasionally during the summer. The creek gets fairly dry through the summer months therefore, after a small rain is the best time to go wading. Mr. Grigsby stated that the stream is trashy due to an old junk yard further upstream. Grigsby owns approximately one mile along the stream. He mentioned that there are deeper holes but none over four feet deep. Grigsby has never actually witnessed anyone in the stream along his property. There is a subdivision nearby and he guessed that kids probably go down to the stream without him knowing they were there.

**Date:** 06/29/05

**Time:** 2:50 PM

**Name:** Mary Lou Sharpe

**Reason for Interview:** owns land along water body between site # 1 and # 2 – phone interview

Mary Lou Sharpe has owned land along and lived near McLean Creek for 78 years. She stated that she does not use the water body for recreational activities, because she has no reason to do so. Ms. Sharpe commented that she was unsure about how many acres she owns along the stream, but said her family has owned the land for several generations. She also said she has not seen anyone using the stream in town.

**Date:** 05/26/05

**Time:** 9:54 AM

**Name:** Marsha Grillo

**Reason for Interview:** lives near site #2

Marsha Grillo has lived near McLean Creek for 14 years. She stated that she tries to keep her children from playing in the stream because she knows the WWTF discharges into it, and claimed that it was 'unsafe' and 'nasty'. Ms. Grillo commented that she has seen children playing by and in the stream at the bridge on Whiteside Road in town.

## Summaries of Interviews (cont'd)

**Date:** 06/30/05

**Time:** 9:34 AM

**Name:** Brian Wehde

**Reason for Interview:** owns land near site #3 – phone interview

Brian Wehde has lived near and owned land along McLean Creek for three years. He stated that his parents own approximately  $\frac{3}{4}$  of a mile along the stream. Mr. Wehde commented that he does not use the water body for recreational activities because there is not enough water, and stated, "That thing isn't swimmable." He said he has seen people fishing from the stream only in high flow conditions, such as after or a big rain or when the Mississippi River is backed up in it.